I claim:

1. A control apparatus for a boom irrigator comprising:

    processor means and associated memory to store data corresponding to a desired distribution of fluid;

5   a plurality of control circuits provided along said boom irrigator, each control circuit being in communication with the processor means, each control circuit arranged to actuate at least one fluid control device associated therewith in response to instructions received from said processor means;

10   said processor means responsive to said data in the associated memory and arranged to communicate with the plurality of control circuits to control operation thereof according to said data.

2. A control apparatus according to claim 1, further comprising a position determining device in communication with said processor means, said

15   processor means being responsive to said position determining device in accessing said data.

3. A control apparatus according to claim 2, further comprising position data, said processor means being responsive to said position data and said position determining device in accessing said data.

20 4. A control apparatus according to claim 1, wherein said plurality of control circuits are in communication with said processor means via a common communications bus and each control circuit has a unique identifier, among said plurality of identifiers, said processor means including said identifier to communicate with said control circuit.

25 5. A control apparatus according to claim 1, wherein each control circuit includes an instruction buffer for receiving and storing instructions from

said processor means, said control circuit responsive to said stored instructions in its buffer to actuate the associated fluid control devices.

6. A control apparatus according to claim 1, wherein at least one of said fluid control devices is connected to a source of an additive fluid, said associated memory including further data corresponding to a desired distribution pattern for each additive fluid, said processor means responsive to said further data to communicate instructions to the control circuit associated with the fluid control devices connected to the source of an additive fluid to control operation thereof according to said further data.

7. A control apparatus according to claim 1, wherein sensor means are provided to sense the moisture content of the soil traversed by the boom irrigator and transmit signals containing information about the sensed moisture content and said information it communicated to said processor means.

8. A control apparatus according to claim 7, wherein transponder means are provided to receive signals from the sensor means and transmit signals in response thereto, the signals transmitted by said transponder means containing said information and being received by receiver means and said receiver means communicating said information to said processor means.

9. A control apparatus according to claim 7, wherein the signals transmitted by said sensor means are received by a receiver means which communicates said information to said processor means.

10. A control apparatus according to claim 1, wherein a weather station is provided to gather data about weather conditions, the said data so gathered being received by a receiver means which communicates said data to said processor means.

11. A system for controlling a boom irrigator comprising:

a control apparatus comprising:

processor means and associated memory storing data corresponding to a desired distribution of fluid;

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a plurality of control circuits provided along said boom irrigator, each control circuit being in communication with the processor means, each control circuit arranged to actuate at least one fluid control device associated therewith in response to instructions received from said processor means;

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said processor means responsive to said data in the associated memory and arranged to communicate with the plurality of control circuits to control operation thereof according to said data; and

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a computer system executing software arranged to allow a user to input desired distribution data for said fluid and each said additive fluid and to store said data, said computer system arranged to communicate said data to said associated memory of said control apparatus.

12. A system for controlling a boom irrigator according to claim 11, further comprising a position determining device in communication with said processor means, said processor means responsive to said position determining device in accessing said data.

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13. A system for controlling a boom irrigator according to claim 12, further comprising position data, said processor means being responsive to said position determining device in accessing said data.

14. A system for controlling a boom irrigator according to claim 11, wherein said associated memory includes a removable portion, said computer system including an interface arranged to receive said removable portion and to store said data thereon.

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15. A system for controlling a boom irrigator according to claim 11, wherein said plurality of control circuits are in communication with said processor means via a common communications bus and each control circuit has a unique identifier, said processor means including said identifier in communications to said control circuit.

16. A system for controlling a boom irrigator according to claim 11, wherein each control circuit includes an instruction buffer for receiving and storing instructions from said processor means, said control circuit responsive to said stored instructions in its buffer to actuate the associated fluid control devices.

17. A system for controlling a boom irrigator according to claim 11, wherein at least one of said fluid control devices is connected to a source of an additive fluid, said associated memory including further data corresponding to a desired distribution pattern for each additive fluid, said processor means responsive to said further data to communicate instructions to the control circuit associated with the fluid control devices connected to the source of an additive fluid to control operation thereof according to said further data.

18. A system for controlling a boom irrigator according to claim 11, wherein sensor means are provided to sense the moisture content of the soil traversed by the boom irrigator and transmit signals containing information about the sensed moisture content and said information it communicated to said processor means.

19. A system for controlling a boom irrigator according to claim 18, wherein transponder means are provided to receive signals from the sensor means and transmit signals in response thereto, the signals transmitted by said transponder means containing said information and being received by receiver means and said receiver means communicating said information to said processor means.

20. A system for controlling a boom irrigator according to claim 18, wherein the signals transmitted by said sensor means are received by a receiver means which communicates said information to said processor means.

21. A system for controlling a boom irrigator according to claim 11, wherein a weather station is provided to gather data about weather conditions, the said data so gathered being received by a receiver means which communicates said data to said processor means.

22. A method for controlling a boom irrigator comprising:

storing data corresponding to a desired distribution of fluid over an area;

providing a plurality of control circuits along said boom irrigator;

instructing each control circuit to actuate at least one fluid control device associated therewith to distribute fluid over said area in accordance with said data.

23. A method according to claim 22, wherein it further comprises the step of determining a position of the boom, and using said position to access said data.

24. A method according to claim 22, wherein it further comprises the step of storing instructions in each control circuit, and using said stored instructions to actuate the associated fluid control devices.

25. A method according to claim 22, wherein it further comprises the steps of:

connecting at least one of said fluid control devices to a source of an additive fluid;

storing further data corresponding to a desired distribution pattern for each additive fluid; and

instructing the control circuit associated with the fluid control devices connected to the source of an additive fluid to control operation thereof according to said further data.

26. A method according to claim 22, wherein it further comprises the steps of:

5   sensing the moisture content of the soil traversed by the boom irrigator;

transmitting signals containing information about the sensed moisture content;

receiving the said signals; and

10   communicating said information to said processor means.

27. A method according to claim 26, wherein it further comprises the steps of:

receiving the signals transmitted by said sensor means at transponder means;

15   transmitting signals from said transponder means containing said information;

receiving said signals transmitted by said transponder means at receiver means; and

communicating said information from said receiver means to said

20   processor means.

28. A method further according to claim 26, wherein it further comprises the steps of:

receiving the signals transmitted by said sensor means at receiver means;

25   and

communicating said information from said receiver means to said processor means.

29. A method according to claim 22, wherein it further comprises the steps of:

gathering data about weather conditions;

receiving said data at receiver means; and

communicating said data from said receiver means to said processor means.

5   30. A method according to claim 22, wherein it further comprises controlling the speed with which said boom irrigator traverses the ground to thereby control the amount of fluid distributed over said area.